

Fracture Pressure and Fracture Gradient

Calculated fracture gradient and maximum injection pressure values are given in Table 4.

Seven step rate tests (SRT) over a twenty foot interval (4,505 – 4,525 ft MD) in the Potosi Dolomite were used to determine the fracture gradient and pressure for the injection zone. Calculated fracture gradient maximum injection pressure values are given in Table 7. Across the tests, the increment in barrels per minute (bpm) was varied from 0.25 bpm to 1.00 bpm. The test durations were 7, 15, 30, and 90 minutes. Four of the tests were performed before an acid injection, and three were performed after acid injection

Pre-operational testing will measure hydraulic fracture pressure both during open hole testing ("mini frac" tests in sealing units) and cased hole testing (SRT in injection formation). Results will be used to refine fracture pressure, gradient, and the highest allowable injection pressure, and will be used with injectivity testing to verify the injectivity rates used in the Plume and AoR simulations.

Table 7. Injection pressure details.

Injection Pressure Details

Injection Well 1

Injection Well 2

Injection Well 3

Fracture gradient (psi/ft)

0.71

0.71

N/A

Maximum injection pressure (90% of fracture pressure) (psi)

2,672

2,815

N/A

Elevation corresponding to maximum injection pressure (ft MSL)

3,621

3,846

N/A

Elevation at the top of the perforated interval (ft MSL)

3,621

3,846

N/A

Calculated maximum injection pressure at the top of the perforated interval (psi)

2,672

2,815

N/A